IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Patent Application of

BOWLES, P. et al. Atty. Ref.: 124-1071

Serial No. 10/786,418 TC/A.U.: 1746

Filed: February 26, 2004 Examiner: Chuo

For: IMPROVED ELECTRODE ASSEMBLY

* *

October 17, 2007

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Appellant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the Examiner.

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(I) REAL PARTY IN INTEREST

The real party in interest is QinetiQ Limited, a corporation of the United Kingdom.

(II) RELATED APPEALS AND INTERFERENCES

The appellant, the undersigned, and the assignee are not aware of any related appeals, interferences, or judicial proceedings (past or present), which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal..

(III) STATUS OF CLAIMS

Claims 1-4, 6-21, 23-30 are pending and have been rejected. No claims have been substantively allowed.

(IV) STATUS OF AMENDMENTS

No amendments have been filed since the date of the Final Rejection.

It is unclear to Applicants whether the Patent Office considered the amendment to the title that was filed on October 3, 2006. Although the remainder of that amendment (e.g., the amendments to the claims) was entered, Applicants note that the Final Office Action dated December 21, 2006, did not reference the amended title and that the title in Private PAIR has not been changed.

(V) SUMMARY OF CLAIMED SUBJECT MATTER

The invention of the claims relates to a pouch battery comprising an electrode assembly.

Independent claim 1 relates to a pouch battery comprising an electrode assembly. (Specification at page 2, line 6.) The assembly is formed by respectively overlaying a sheet cathode, a sheet separator and a double-sided sheet anode to form a stacked structure. (*Id.* at page 2, lines 7-10.) The stacked structure is subjected to multiple folds. (*Id.* at page 2, lines 7-10.) The initial fold comprises folding the cathode in half around the double-sided anode so as to surround the respective upper and lower active anode surfaces. (*Id.* at page 2, lines 10-12.) One or more subsequent folds is made with the fold line extending perpendicular to the original length of the stacked structure and its overall length is halved at each fold. (*Id.* at page 3, lines 10-16.)

Independent claim 19 relates to a method of manufacturing a pouch battery. (*Id.* at page 5, lines 13-14.) The method includes overlaying a sheet cathode, a sheet separator and a double-sided sheet anode, respectively, to form a stacked structure. (*Id.* at page 5, lines 15-16.) The method also includes folding the cathode in half around the double-sided anode so as to surround the respective upper and lower active surfaces. (*Id.* at page 5, lines 17-19.) The method further includes subjecting the folded sheets to one or more further folds to form an electrode assembly. (*Id.* at page 2, lines 7-10.) The method also includes forming a pouch battery by sealing the electrode assembly in an envelope. (*Id.* at page 5, lines 24-26.) The one or more further folds are made with the fold line

extending perpendicular to the original length of the stacked structure and its overall length is halved at each fold. (*Id.* at page 3, lines 10-16.)

Independent claim 28 relates to a pouch battery in which cathode, separator and anode sheets have been respectively overlaid on one another to form a stacked structure. (*Id.* at page 6, lines 13-16.) The structure has been successively folded in half so that its length is halved at each fold. (*Id.* at page 6, lines 16-17.) Each fold is made upon the same side of the structure with the fold lines extending perpendicular to the original length. (*Id.* at page 6, lines 17-19.)

Independent claim 29 relates to a primary lithium/solid cathode pouch battery comprising an electrode assembly. (*Id.* at page 4, lines 7-9.) The assembly is formed by respectively overlaying a sheet cathode, a sheet separator and a double-sided sheet anode to form a stacked structure. (*Id.* at page 5, lines 15-16.) The stacked structure is subjected to multiple folds. (*Id.* at page 3, lines 10-20.) The initial fold comprises folding the cathode in half around the double-sided anode so as to surround the respective upper and lower active anode surfaces thereof. (*Id.* at page 2, lines 10-12.) The one or more successive folds fold the stacked structure so its overall length is halved with each fold and the fold lines being made perpendicular to that length. (*Id.* at page 3, lines 10-16.)

Independent claim 30 relates to a primary lithium/solid cathode pouch battery comprising an electrode assembly (*Id.* at page 4, lines 7-9.) The assembly is formed by respectively overlaying a sheet cathode, a sheet separator and a double-sided sheet anode to form a stacked structure. (*Id.* at page 5, lines 15-16.) The stacked structure is

subjected to multiple folds. (*Id.* at page 3, lines 10-20.) The initial fold comprises folding the cathode in half around the double-sided anode so as to surround the respective upper and lower active anode surfaces thereof. (*Id.* at page 2, lines 10-12.) The one or more successive folds fold the stacked structure so its overall length is halved with each fold and the fold lines being made perpendicular to that length. (*Id.* at page 3, lines 10-16.) The double-sided anode comprises a current collector in the form of a mesh or grid with lithium foil occupying the openings thereof to form a double-sided lithium anode. (*Id.* at page 4, line 33 – page 5, line 3.)

(VI) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-4, 6-15, 17-21, and 23-29 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Giwa et al., "Scale-Up of Lithium/Carbon Monofluoride Envelope Cells," Proceedings of the 39th Power Sources Conference, June 2000, pp. 32-35 (Giwa).

2. Claims 16 and 30 stand rejected under 35 U.S.C. § 103(a) as allegedly rendered obvious by Giwa in view of U.S. App. Pub. No. 2003/0194604 to Aamodt et al. (Aamodt).

(VII) ARGUMENT

Applicants appeal the two art-based rejections based on Giwa et al., "Scale-Up of Lithium/Carbon Monofluoride Envelope Cells," Proceedings of the 39th Power Sources Conference, June 2000, pp. 32-35 (Giwa), either alone or in combination with U.S. App. Pub. No. 2003/0194604 to Aamodt et al. (Aamodt). Before addressing the specific rejections, Applicants emphasize that the claims are drafted to cover systems and methods that include, inter alia, a parallel folding pattern (e.g., where the "overall length is halved at each fold") rather than the zig-zag folding pattern which is well-known to ordinarily skilled persons skilled in art of batteries.

Each of independent claims 1, 19, 28 and 29 are distinguished over the prior art, at least, by successively folding the laid up cathode/separator/anode structure perpendicular to its length and such that the overall length of said structure is halved with each fold. Such aligned half-folds are referred to in the originally filed application (published as U.S. Pat. App. Pub. No. 2005/0191545 (the '545 Publication)) as "parallel folds" (*cf.* paragraph [0010]) and are described in more detail at paragraphs [0041] to [0044] with reference to the illustration of Figure 5.

As discussed in the application, parallel folds according to the present invention may confer a number of advantages over the prior art, such as, for example, rapid reduction of cell-size, improved utilization of materials due to less acute folding and ease of electrolyte filling (*cf.* '545 Publication, paragraphs [0011], [0041] and [0042]). Thus, the inventors have found that pouch batteries constructed according to the invention can offer better cell performance and exhibit better electrolyte permeation than pouch

batteries assembled by the well-known and very widely used prior art technique of zig-zag folding (also known as fan-folding or concertina folding).

In the case of claim 28, for example, the parallel folds are additionally made upon the same side of the structure, which is desirable so that the sheets continue to be rotated in the same direction (*cf.* '545 Publication, paragraph [0010], penultimate sentence).

Independent claim 30, furthermore, is directed to a particularly preferred embodiment of the invention specified in claim 29 having the additional feature of a double-sided anode comprising a current collector in the form of a mesh or grid with lithium foil occupying the openings thereof. Claim 30 accordingly combines the benefits of two novel pouch battery features, namely the above-mentioned benefits of the parallel folding feature and the ability of the 'mesh anode' to preserve structural integrity and current flow, regardless of the extent of anode breakdown (*cf.* page 2, paragraph [0023] of '545 Publication).

1. Claims 1-4, 6-15, 17-21, and 23-29 Are Not Anticipated Under 35 U.S.C. § 102(b)

The rejection of claims 1-4, 6-15, 17-21, and 23-29 as anticipated by Giwa et al., "Scale-Up of Lithium/Carbon Monofluoride Envelope Cells," Proceedings of the 39th Power Sources Conference, June 2000, pp. 32-35 (Giwa), may be treated as a group. The Board may select claim 1 from that group to decide the appeal with respect to this ground of rejection.

In the Final Office Action dated December 21, 2006, the Examiner rejected independent claims 1, 19, 28 and 29 as allegedly anticipated under 35 U.S.C. § 102 over Giwa. Applicants submit that none of the claims are anticipated by Giwa, at least for the

following reasons. First, Giwa does not contain any disclosure – either express or inherent – of parallel folding. Second, the "Cell Construction" section of Giwa is ambiguous, and the "parallel folding" feature is not inherently disclosed. And third, the Examiner's interpretation of Giwa relies solely on the hindsight gleaned from Applicants' disclosure and not the necessary, inevitable presence of information in Giwa.

First, Giwa does not contain any disclosure of parallel folding. As illustrated in the embodiments of Figures 3 to 5, independent claims 1, 19 and 29 include, *inter alia*, the following:

- an electrode assembly formed by respectively overlaying a sheet cathode **1, 2** a sheet separator **3** and a double sided sheet anode **4, 8** to form a stacked structure (*cf.* Fig. 3a);
- an initial fold whereby the cathode is folded in half around the double sided anode (see fold line A-A in Fig. 3b) so as to surround the upper and lower active surfaces thereof (*cf.* Fig. 4a);
- one or more subsequent folds made with the fold line extending perpendicular to the original length of the stacked structure (*cf.* Fig 5 & paragraph [0043]:- lower edge B-B is folded parallel with upper edge C-C around fold line D-D); and
- **wherein the overall length is halved at each fold** (*cf.* Fig. 5 & paragraph [0043]:- fold line D-D is the mid-point of the unfolded stacked structure and lower edge B-B meets upper edge C-C).

Similarly, independent claim 28 specifies a structure which "has been successively folded in half so that its length is halved with each fold . . . with the fold lines extending perpendicular to the original length."

A characterizing feature of each independent claim is the parallel folding feature – that is, the folds are made with the fold line extending perpendicular to the original length of the stacked structure and wherein the overall length is halved at each fold.

It is well established that in order to anticipate, a reference must literally disclose each and every feature of a claimed invention. *See, e.g., Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003).; *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir. 1989) ("The identical invention must be shown in as complete detail as is contained in the patent claim.").

To satisfy this strict legal test, the Examiner alleges that Giwa discloses a pouch battery (and a method of making a pouch battery) comprising a primary lithium/solid cathode cell, an assembly formed by respectively overlaying a sheet cathode, a sheet separator and a lithium metal sheet anode to form a stacked structure, which stacked structure is subjected to 1 to 5 folds, wherein the initial fold comprises folding the cathode sheet around a double-sided lithium anode. (*See* Final Office Action dated December 21, 2006, at 2-3.) The Examiner further alleges that because the cathode is folded in half around a double-sided anode sheet so as to surround the respective upper and lower surfaces thereof (such that the fold line extends perpendicular to its length), the anode sheet is half the length of the cathode sheet. The Examiner, however, fails to cite to any portion of Giwa that expressly discloses the parallel folding feature of the present claims, *e.g.*, that the overall length of the stacked structure is halved at each fold.

The Examiner alleges in various other sections of the Office Action that Giwa discloses a structure which has been folded so that its length is halved at each fold (*e.g.*, Final Office Action at 4-5). But an examination of those portions of Giwa readily shows that the allegation is not substantiated by the reference. There simply is no disclosure in

Giwa of parallel folding; instead, the Examiner appears to be inferring a teaching from the reference (*cf.* Final Office Action at 6).

Applicants submit that there is no express disclosure of parallel folding in Giwa.

Second, the "Cell Construction" section of Giwa is ambiguous, and the "parallel folding" feature is not inherently disclosed. Giwa does not inherently disclose parallel folding; parallel folding is not necessarily a part of the reference. *MEHL/Biophile Int'l Corp. v. Milgraum,* 192 F.3d 1362, 1365 (Fed. Cir.1999) ("Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates.") (emphasis added). It is beyond dispute that probabilities and possibilities are not enough: "[t]he mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Oelrich,* 666 F.2d 578, 581 (CCPA 1981) (quoting *Hansgrig v. Kemmer*, 102 F.2d 212, 214 (CCPA 1939)).

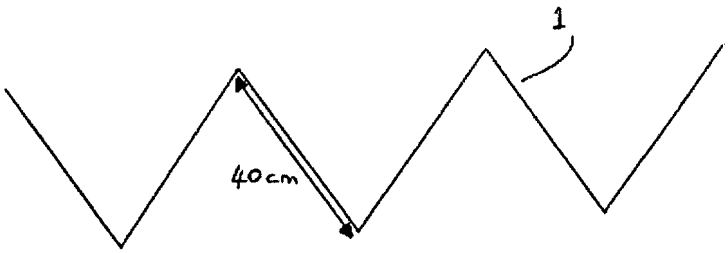
The Examiner appears to argue that parallel folding as recited in the pending claims is inherently taught by Giwa. In responding to Applicants' arguments regarding the teachings of Giwa, for example, the Examiner states that "the only logical method of folding the electrodes is to start with electrodes that have an active area of 240 x 7.5 cm and then fold the electrodes five times . . . so that its overall length is halved at each fold until reaching the **final area** of 7.5 x 7.5 cm." (Final Office Action at 6.)

The Examiner's conclusion, however, is based on an assumption that the **final area** of the folded cell is 7.5 x 7.5 cm. That assumption also appears to have been made on page 3 of the Final Office Action, where it is stated that Giwa "discloses folding the cell 5 times, starting with a sheet that is 240 x 7.5 cm and ending with a folded

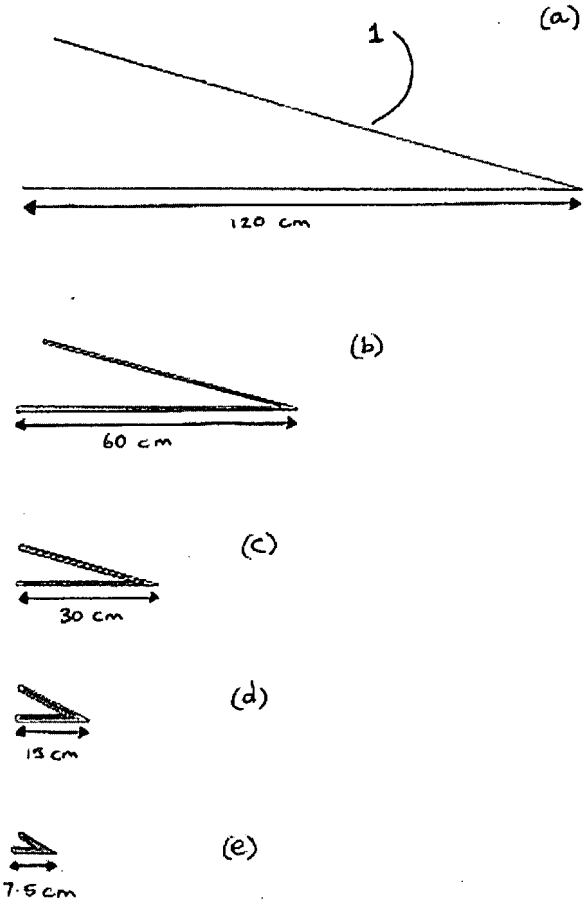
construction that is 7.5 x 7.5 cm." Applicants submit that the Examiner's assumption is erroneous and that, as a consequence, a flawed conclusion about the inherent disclosure of Giwa has been derived.

An examination of the "Cell Construction" section of Giwa does not support the Examiner's understanding of the reference. Lines 4-9 of that section of the reference state (emphasis supplied): "The cells used a folded construction with **each fold** being 7.5 x 7.5 cm. The cells were folded successively, from 1 to 5 times giving active areas of 15 x 7.5 cm up to 240 x 7.5 cm (1.125 to 18 Ah)." Taking the second sentence first, the following explanation (with accompanying drawings) illustrate two possible ways of folding a 240 x 7.5 cm (18Ah) electrode structure successively, 5 times:

In the following drawing, a prior art zig-zag fold is schematically illustrated (sideways view) in which the length of **each fold** of electrode structure **1** is 40 cm. This corresponds to a fold size of 40 x 7.5 cm:



In the next drawing, on the other hand, the parallel folding of the present claims is schematically illustrated. It can be seen that the length of each fold of electrode structure **1** becomes progressively smaller ((a) through (e)) with the corresponding fold size starting at 120 x 7.5 cm, then moving through 60 x 7.5 cm, 30 x 7.5 cm and 15 x 7.5 cm and finally reaching 7.5 x 7.5 cm. Thus, **each fold** is a <u>different</u> size:



Thus, there are at least several possible understandings that may be gleaned from Giwa's folding-related disclosure.

Returning to the first sentence of the above-cited section of Giwa, it clearly states that, contrary to the Examiner's opinion, each fold (and not the final cell, nor the final structure) has dimensions 7.5 x 7.5 cm. As demonstrated by the accompanying illustrations, neither the prior art zig-zag fold, nor the parallel fold of the present claims, satisfies that requirement. Thus, two possible situations apply: either the first sentence contradicts the second sentence or yet another folding method is used in Giwa. Regardless, it is clear that Giwa does not contain an inherent, unambiguous, and necessary disclosure of the claimed folding such that the public would have been put in

possession of the invention as presently claimed. *See, e.g., In re LeGrice*, 301 F.2d 929, 936 (CCPA 1962).

Inherency requires that the nonexpress disclosure be a necessary result of the description in the prior art – and not merely a possible result. *Oelrich,* 666 F.2d at 581. Accordingly, given that at least two possible interpretations of the "Cell Construction" section of Giwa are possible, Applicants submit that the cited text does not disclose how the pouch cells were folded and cannot possibly be held to be an inherent disclosure of the "parallel folding" feature of the present invention.

And third, the Examiner's interpretation of Giwa relies solely on the hindsight gleaned from Applicants' disclosure and not the necessary, inevitable presence of information in Giwa. It is improper to use Applicants' own disclosure to establish the inherent disclosure of Giwa. *See, e.g., Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1379 (Fed. Cir. 2005) (explaining that "[t]he alleged anticipating reference here is Pereira [the prior art reference], not Dr. Perricone's [the patentee's] own teachings.").

With respect to inherency, the Examiner's assertion that "the only logical method" of folding the electrodes is to use the parallel folding feature of the present invention appears to be based solely on the assumption that the final size of the structure (as opposed to the size of **each fold** as stated in Giwa) is 7.5 x 7.5 cm. Applicants completely disagree with that assumption, for the reasons outlined above, and further submit that the assumption has been made only with the benefit of hindsight based on Applicants' disclosure. Only with the benefit of hindsight could the Examiner have

reached the improper conclusions about the disclosure of the "Cell Construction" section of Giwa, as stated in the Final Office Action.

In sum, the disclosure of Giwa is ambiguous and contains absolutely no clear teaching as to the method of constructing the pouch cells disclosed therein. Although the document teaches that a folded construction is used, and, indeed, provides the final capacities and number of folds for the cells so-obtained, it is submitted that Giwa contains neither an express nor inherent disclosure of "parallel folding" as recited in the present claims.[1]

Therefore, claims 1, 19, 28 and 29 are not anticipated by Giwa. And because their respective independent claims are patentable, dependent claims 2-4, 6-18, 20-21 and 23-27 are also patentable. *See In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988).

2. Claims 16 and 30 Are Not Obvious Under 35 U.S.C. § 103(a)

The rejection of dependent claim 16 and independent claim 30 as obvious over Giwa in view of U.S. App. Pub. No. 2003/0194604 to Aamodt et al. (Aamodt), may be treated as a group. The Board may select independent claim 30 from that group to decide the appeal with respect to this ground of rejection.

In view of the above-presented arguments regarding anticipation in light of Giwa, Applicants submit that claim 30 is patentable merely by virtue of the "parallel folding" feature. That feature is not taught, suggested, or implied by the prior art. And there is no

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[1] Giwa also does not render the claims unpatentable as obvious. There is no evidence or allegation that a person having ordinary skill in the art at the time of the invention – even a non-automaton – would have found the claimed subject matter obvious based on Giwa's disclosure. *Cf. KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. ___, 127 S. Ct. 1727 (2007).

evidence to show that a person having ordinary skill in the art at the time of the invention would have found parallel folding to be obvious in light of Giwa. There simply is no rationale for changing zig-zag folding to parallel folding. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

Furthermore, the additional feature of claim 30 – i.e., "a double-sided anode comprising a current collector in the form of a mesh or grid with lithium foil occupying the openings thereof" – is also a nonobvious improvement over the cited combination of prior art. Aamodt does not teach a double-sided lithium anode in the form of a mesh or grid. Rather, Aamodt merely teaches that a current collector in the form of a metal grid can be used, in a wound lithium battery, to stabilize and reinforce the cohesive bond between two lithium foils. It can be seen from Figure 2, and by referring to the text at page 3, para [0027], that the metal grid is laid over the thin piece of alkali metal (15) with only a small area of overlap (8) between the thin alkali metal and the elongated (double-sided) alkali metal (10). The thinner foil forms the outermost windings of the cell and provides enough lithium for depleting the cathode material facing only the inner side of the outer most winding (*cf.* page 2, para [0013]). In other words, the thin lithium foil comprising a metal grid current collector is not a double-sided anode. For this additional reason, claim 30 is patentable over the cited combination of prior art; the prior art does not teach, suggest, or imply all claim limitations.

CONCLUSION

In conclusion it is believed that the application is in clear condition for allowance; therefore, early reversal of the Final Rejection and passage of the subject application to issue are earnestly solicited..

Respectfully submitted,

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(VIII) CLAIMS APPENDIX

1. A pouch battery comprising an electrode assembly, said assembly formed by respectively overlaying a sheet cathode, a sheet separator and a double-sided sheet anode to form a stacked structure, and subjecting the stacked structure to multiple folds, wherein the initial fold comprises folding the cathode in half around the double-sided anode so as to surround the respective upper and lower active anode surfaces thereof, and wherein one or more subsequent folds is made with the fold line extending perpendicular to the original length of the stacked structure and its overall length is halved at each fold.

2. A pouch battery according to claim 1, wherein the anode comprises a single sheet current collector whose dimensions match those of the cathode when folded in half.

3. A pouch battery according to claim 2, wherein the cathode and separator are substantially the same size and shape.

4. A pouch battery according to claim 1, wherein during the initial fold the cathode is folded midway along its length, so that the fold line extends perpendicular to its length.

5. (Canceled)

6. A pouch battery according to claim 1, wherein the one or more subsequent folds is made upon the same side of the stacked structure.

7. A pouch battery according to claim 1, wherein up to 5 or 6 folds are made in total.

8. A pouch battery according to claim 1, wherein the battery capacity exceeds 18Ah.

9. A pouch battery according to claim 1, wherein the cathode comprises a sheet current collector and a cathode material layer.

10. A pouch battery according to claim 9, wherein the cathode has an active surface on only one side thereof, formed by the cathode material layer.

11. A pouch battery according to claim 1, wherein the total cathode and anode capacities are roughly matched to produce a balanced cell.

12. A pouch battery according to claim 1, which comprises a primary lithium/solid cathode cell.

13. A pouch battery according to claim 1, wherein the cathode comprises carbon monofluoride.

14. A pouch battery according to claim 1, in which the double-sided anode comprises a single sheet current collector and one or more anode material layers forming said upper and lower active surfaces.

15. A pouch battery according to claim 14, wherein said layers have been attached together or merged together or otherwise combined together to form a single integral anode.

16. A pouch battery according to claim 15, in which the double-sided anode comprises a current collector in the form of a mesh or grid with lithium foil occupying the openings thereof to form a double-sided lithium anode.

17. A pouch battery according to claim 14, wherein there is only one anode material layer, which is effectively a single layer of lithium metal having upper and lower active surfaces.

18. A pouch battery according to claim 14, wherein the loading of the cathode material layer is selected so that the cathode capacity/cm^2 is about half that of the anode capacity/cm^2.

19. A method of manufacturing a pouch battery comprising the steps of:

overlaying a sheet cathode, a sheet separator and a double-sided sheet anode, respectively, to form a stacked structure;

folding the cathode in half around the double-sided anode so as to surround the respective upper and lower active surfaces thereof;

subjecting the folded sheets to one or more further folds to form an electrode assembly; and,

forming a pouch battery by sealing the electrode assembly in an envelope,

wherein the one or more further folds are made with the fold line extending perpendicular to the original length of the stacked structure and its overall length is halved at each fold.

20. A method according to claim 19, further comprising an electrolyte filling stage.

21. A method according to claim 19, wherein during the initial fold the cathode is folded midway along its length, so that the fold line extends perpendicular to its length.

22. (Canceled)

23. A method according to claim 19, wherein the one or more subsequent folds is made upon the same side of the stacked structure.

24. A method according to claim 19, wherein the total cathode and anode capacities are roughly matched to produce a balanced cell.

25. A method according to claim 19, wherein the loading of the cathode material layer is selected so that the cathode capacity/cm^2 is about half that of the anode capacity/cm^2.

26. A method according to claim 19, wherein the pouch battery comprises a primary lithium/solid cathode cell.

27. A method according to claim 19, wherein the cathode comprises carbon monofluoride.

28. A pouch battery in which cathode, separator and anode sheets have been respectively overlaid on one another to form a stacked structure, and the structure has been successively folded in half so that its length is halved at each fold, each fold being made upon the same side of the structure with the fold lines extending perpendicular to the original length.

29. A primary lithium/solid cathode pouch battery comprising an electrode assembly formed by respectively overlaying a sheet cathode, a sheet separator and a double-sided sheet anode to form a stacked structure, and subjecting the stacked structure to multiple folds, wherein the initial fold comprises folding the cathode in half around the double-sided anode so as to surround the respective upper and lower active anode surfaces thereof, and wherein one or more successive folds comprises folding the stacked structure so its overall length is halved with each fold, the fold lines being made perpendicular to that length.

30. A primary lithium/solid cathode pouch battery comprising an electrode assembly formed by respectively overlaying a sheet cathode, a sheet separator and a double-sided sheet anode to form a stacked structure, and subjecting the stacked structure to multiple folds, wherein the initial fold comprises folding the cathode in half around the double-sided anode so as to surround the respective upper and lower active anode surfaces thereof, and wherein one or more successive folds comprises folding the stacked structure so its overall length is halved with each fold, the fold lines being made perpendicular to that length, and wherein the double-sided anode comprises a current collector in the form of a mesh or grid with lithium foil occupying the openings thereof to form a double-sided lithium anode.

(IX) EVIDENCE APPENDIX

(None.)

(X) RELATED PROCEEDINGS APPENDIX

(None.)